

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Raymond Allan Pickup et al

Serial No.: 10/764,254

Filing Date: January 23, 2004

Title: *Tool for Applying Clips*



Group Art Unit: 3725

Examiner: Crane, Daniel C.

Attny. Docket No. 075200.0101

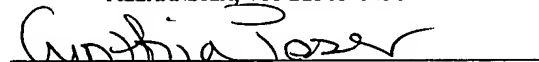
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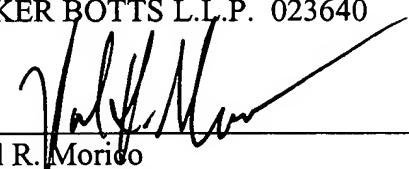
SUBMISSION OF PRIORITY DOCUMENT

Dear Sir:

We enclose herewith a certified copy of United Kingdom patent application GB 0117966.2 which is the priority document for the above-referenced patent application.

Respectfully submitted,

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DATE: July 20, 2005

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*William Morell*

Dated 29 June 2005

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Patent Act 1977  
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1/77  
24JUL01 E047515-1 605940  
P01/7700 0.00-0117966.2

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(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road  
Newport  
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1. Your reference	RG-79GB		
2. Patent application number (The Patent Office will fill in this part)	24 JUL 2001 0117966.2		
3. Full name, address and postcode of the or of each applicant (underline all surnames)	J & H ROSENHEIM LIMITED LANCASTER FIELDS GATEWAY CREWE CHESHIRE CW1 6FF		
Patents ADP number (if you know it)	8194540001		
If the applicant is a corporate body, give the country/state of its incorporation	UNITED KINGDOM		
4. Title of invention	CLOSURE TOOL		
5. Name of your agent (if you have one)	Ronald GRAVES		
"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)	24 FITZWILLIAM AVENUE SUTTON MACCLESFIELD CHESHIRE SK11 0EJ		
Patents ADP number (if you know it)	4245577003		
6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or each of these earlier applications and (if you know it) the or each application number	Country	Priority application number (if you know it)	Date of filing (day / month / year)
7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	Number of earlier application		Date of filing (day / month / year)
8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if: a) any applicant named in part 3 is not an inventor, or b) there is an inventor who is not named as an applicant, or c) any named applicant is a corporate body See note (d))	YES		

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Claim(s)	2
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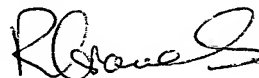
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Statement of inventorship and right to grant of a patent ( <i>Patents Form 7/77</i> )	0
Request for preliminary examination and search ( <i>Patents Form 9/77</i> )	0
Request for substantive examination ( <i>Patents Form 10/77</i> )	0
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11.

I/We request the grant of a patent on the basis of this application

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Date: 23/07/2001

12. Name and daytime telephone number of person to contact in the United Kingdom

Ronald GRAVES

01260 252653

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## CLOSURE TOOL

This invention relates to closure tools, and in particular to tools for closing heavy-duty clips as used for example in the building trade and in agriculture.

It is known to use a closure tool for closing heavy duty clips to fasten together sections of mesh and the like as used in the building trade and in agriculture, for constructing animal cages, enclosures or the like, or in constructing fences on farms, building sites or the like. Such tools usually consist of a magazine for an assembly of clips and a jaw arrangement to which the clips are fed singly in sequence. The jaws are moved pneumatically to force the clip that has been introduced between them into a closed configuration around the wires of the mesh, thereby securing two sections of mesh together. Alternatively, the jaws may be moved by hydraulic or electrical power. Such tools are useful in locations having an accessible source of air, hydraulic or electrical power. However, it is often required to use install such clips in locations remote from sources of such power, and the use of portable sources of power is cumbersome and inconvenient. Hand tools for performing various functions are known. In such cases, where considerable effort is required to perform the function, either very long handles or a system of levers is employed to make the applied forces required within the capabilities of a person performing the function, e.g. long handled shears, tree loppers and the like. Such tools may still require considerable effort by the user unless the tool is large and heavy, in which case the tools are unwieldy to transport and in use. In addition, such tools can be difficult to control to effect a function such as clip closure accurately.

It is an object of the present invention to provide a closure tool that is useable in locations that do not have a source of pneumatic, hydraulic or electrical power readily available. It is a further object of the invention to provide a closure tool that is convenient to use and provides accurate control of the function for which the tool is to be used.

The invention provides a closure tool having a body, at least one handle movably mounted therein and a pair of anvils movable relative to each other from a spaced position to closure position in response to relative movement of the at least one handle and the body, wherein a first gear member is connected to the at least one handle and movable therewith, a second gear member is engaged by the first gear member and movable therewith, and at least one of the anvils is connected to the second gear member to be movable therewith.

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The anvils may have co-operating formations thereon providing a closing chamber for a clip when the anvils are in the spaced disposition. The closing chamber may be substantially circular when the anvils are in the closure position. The at least one handle may be pivotally mounted in the body. The first gear member may comprise a circular gear wheel and may comprise a sector thereof. The second gear member may comprise a rack slidably mounted in the body. The at least one anvil may be an end part of the second gear member. The other anvil may be secured to the body.

The closure tool may comprise a pair of handles movably mounted in the body and a pair of anvils movable relative to each other from a spaced position to closure position in response to relative movement of the handles. Each handle may be connected to a respective first gear member. In this case, each handle may be pivotally mounted in the body. The second gear member may be engaged by each first gear member, which may have gear formations on opposed sides thereof, each gear formation being engaged by a respective first gear member.

The closure tool may have a magazine adapted to receive a plurality of clips. The magazine may be mounted on the body whereby an outlet end of the magazine is disposed adjacent the closing chamber. The magazine may comprise a spring device adapted in use of the closure tool to force a plurality of clips towards the outlet end of the magazine. The at least one anvil may have a severing edge thereon adapted to sever a leading clip adjacent the outlet end of the magazine from a plurality of clips received in the magazine and move the leading clip into the closing chamber. The magazine may be arcuate. The closure tool may be of aluminium.

The invention will now be described with reference to the accompanying drawings in which:

Fig. 1 is a front view of a closure tool,

Fig. 2 is a side view of the closure tool of Fig. 1, and

Fig. 3 is a perspective view to an enlarged scale of a clip for use in the closure tool of Figs. 1 and 2.

Referring now to the Figures, there is shown a closure tool 10 for closing heavy duty clips 11 to fasten together wires or sections of mesh 12 and the like as used in the building trade and in agriculture. The closure tool 10 consists of a body 13, including a top plate 13a on which two handles 14 are mounted on pivots 15. Attached to or integral with each handle 14 is a first gear member 16 in the form of a sector of a circular gear wheel. The centre of curvature of each first gear member 16 is the respective pivot 15. Intermeshing with the two first gear members 16 is a second gear member 17 in the form of a double-sided rack. Attached to or integral with the second gear member 17 is a first anvil 18. The first anvil 18 and the second

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gear member 17 are guided by two side plates 19 to move along a linear path when the handles 14 are moved towards each other or away from each other. Attached to or integral with the body 13 is a second anvil 20. Also mounted on the body 13 is a curved magazine 21 for storing an assembly of clips 11 for use by the closure tool 10. The body 13, handles 14, first and second gear members 16, 17 and magazine 21 are of aluminium to minimise the weight of the closing tool 10.

In use, operation of the closure tool 10 is as follows. The handles 14 are moved away from each other so that the anvils 18, 20 are spaced apart. An assembly of clips 11 is placed in the magazine 21. The clips 11 are temporarily secured to each other in side-by-side disposition by a tape 22 (shown in dashed lines in Fig. 3). Each clip 11 is formed into a U-shape and is formed with a tongue 23 at one end and a correspondingly shaped cut-out 24 at the other end. The assembly of clips 11 is forced by a spring 25 towards the outlet end 26 of the magazine 21 so that the leading clip 11 is disposed adjacent a closing chamber 27 formed between the first anvil 18 and the second anvil 20. The closure tool 10 is placed so that the wires, mesh or the like 12 to be secured together pass through the closing chamber 27. The handles 14 are then moved towards each other, causing rotation of the first gear members 16 about the pivots 15. This in turn causes the second gear member 17 with the first anvil 18 to move relative to the body 13 and the second anvil 20. A severing edge 28 formed on the first anvil 18 cuts the tape 22 to allow the leading clip 11 to move properly into the closing chamber 27 and around the wires 12. Movement of the first anvil 18 towards the second anvil 20 progressively reduces the longitudinal extent of the closing chamber 27. The opposed surfaces of the closing chamber 27 in the first and second anvils 18, 20 are of circular form so that the ends 23, 24 of the clip 11 are forced towards each other. The clip 11 eventually is formed substantially into a circular shape surrounding the wires 12 with the tongue 23 received in the cut-out 24. The handles 14 are then moved away from each other and the closure tool 10 removed from the wires 12.

By means of the invention, a closure tool is provided that is convenient to use in any location that has no power source available. The closure tool of the invention is relatively compact and readily transportable. The rack and gear wheel arrangement provides that the operation of the closure tool is smoother and more controlled than with known arrangements using very long handles and/or lever mechanisms. Other embodiments of closure tool within the scope of the invention will be readily apparent to persons skilled in the art. For example, both anvils may be movable relative to the body and each other, with one handle geared to one anvil and the other handle geared to the other anvil. Alternatively, one handle may be secured to or integral with the body and one anvil, with the other handle movable relative thereto and

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geared to the other, movable, anvil. As a further alternative, the movable anvil may be attached to a circular second gear so that it moves in an arcuate path towards the other anvil. In such a case, the movement of one handle relative to the body and the other handle may be linear. The closure tool may be made of any suitable material, such as a plastics material if such material is adequately strong for the intended use to which the tool is to be put. If preferred, the magazine may be dispensed with and the clips may be loaded into the closing chamber individually.

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## CLAIMS

1. A closure tool having a body, at least one handle movably mounted therein and a pair of anvils movable relative to each other from a spaced position to closure position in response to relative movement of the at least one handle and the body, wherein a first gear member is connected to the at least one handle and movable therewith, a second gear member is engaged by the first gear member and movable therewith, and at least one of the anvils is connected to the second gear member to be movable therewith.
2. A closure tool according to claim 1, wherein the anvils have co-operating formations thereon providing a closing chamber for a clip when the anvils are in the spaced disposition.
3. A closure tool according to claim 2, wherein the closing chamber is substantially circular when the anvils are in the closure position.
4. A closure tool according to any one of claims 1 to 3, wherein the at least one handle is pivotally mounted in the body.
5. A closure tool according to claim 4, wherein the first gear member comprises a circular gear wheel.
6. A closure tool according to claim 5, wherein the first gear member comprises a sector of a circular gear wheel.
7. A closure tool according to claim 5 or claim 6, wherein the second gear member comprises a rack slidably mounted in the body.
8. A closure tool according to any one of claims 1 to 7, wherein the at least one anvil is an end part of the second gear member.
9. A closure tool according to claim 8, wherein the other anvil is secured to the body.
10. A closure tool according to any one of claims 1 to 9, comprising a pair of handles movably mounted in the body and a pair of anvils movable relative to each other from a spaced position to closure position in response to relative movement of the handles.

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11. A closure tool according to claim 10, wherein each handle is connected to a respective first gear member.
12. A closure tool according to claim 11, wherein each handle is pivotally mounted in the body.
13. A closure tool according to claim 12, wherein the second gear member is engaged by each first gear member.
14. A closure tool according to claim 13, wherein the second gear member has gear formations on opposed sides thereof, each gear formation being engaged by a respective first gear member.
15. A closure tool according to any one of claims 1 to 14, comprising a magazine adapted to receive a plurality of clips.
16. A closure tool according to claim 15, wherein the magazine is mounted on the body whereby an outlet end of the magazine is disposed adjacent the closing chamber.
17. A closure tool according to claim 16, wherein the magazine comprises a spring device adapted in use of the closure tool to force a plurality of clips towards the outlet end of the magazine.
18. A closure tool according to claim 16 or claim 17, wherein the at least one anvil has a severing edge thereon adapted to sever a leading clip adjacent the outlet end of the magazine from a plurality of clips received in the magazine and move the leading clip into the closing chamber.
19. A closure tool according to any one of claims 16 to 18, wherein the magazine is arcuate.
20. A closure tool according to any one of claims 1 to 19, made of aluminium.
21. A closure tool substantially as hereinbefore described with reference to and as illustrated in Figs. 1 and 2 of the accompanying drawings.

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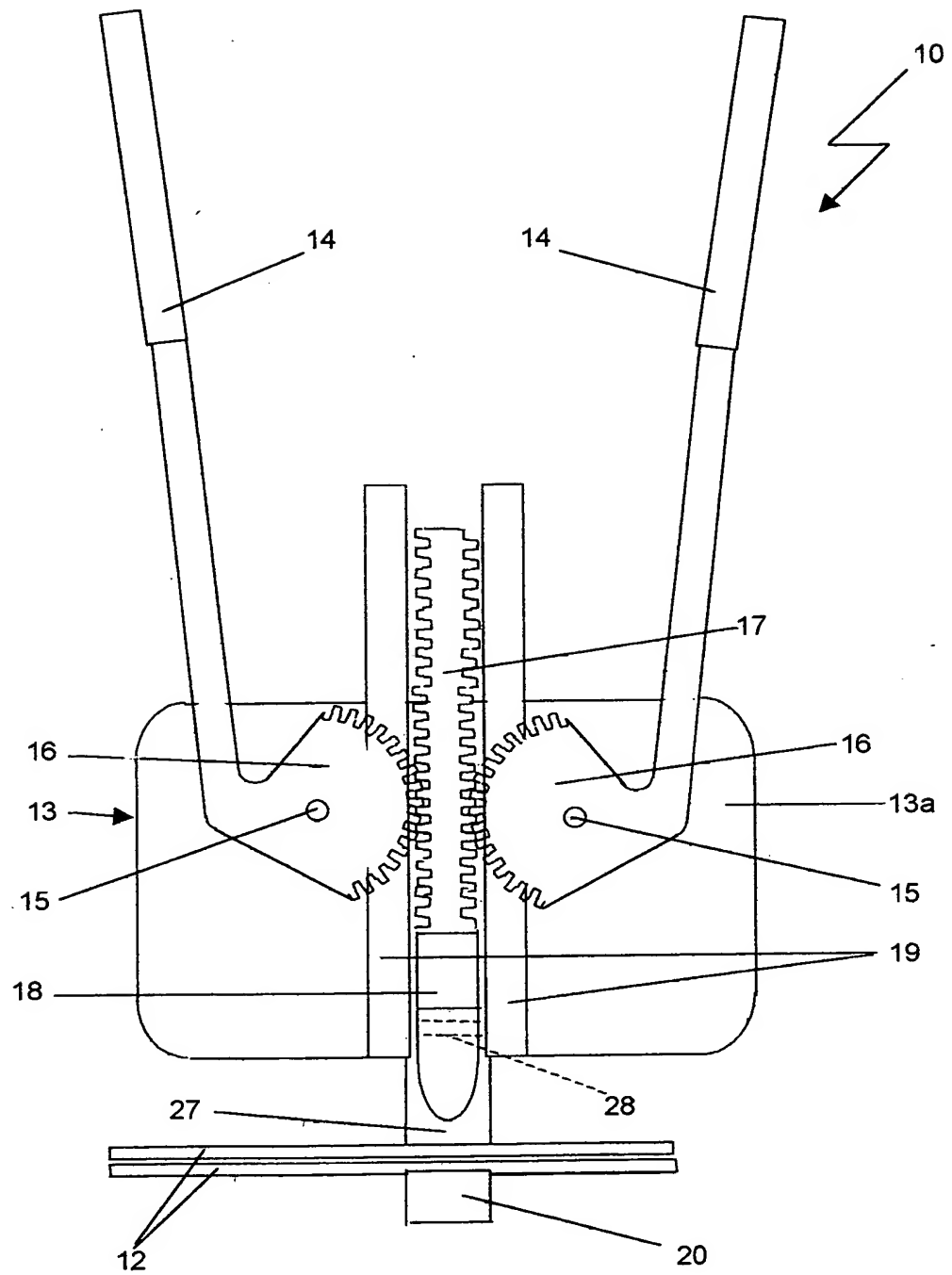


Fig. 1

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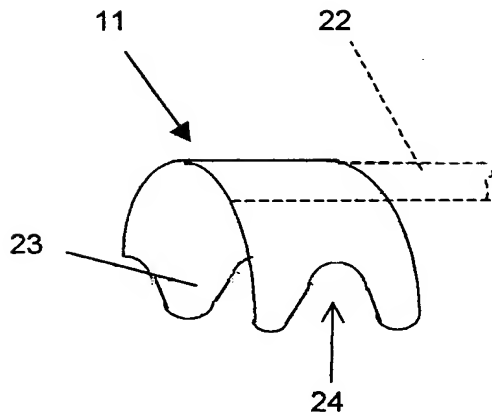


Fig. 3

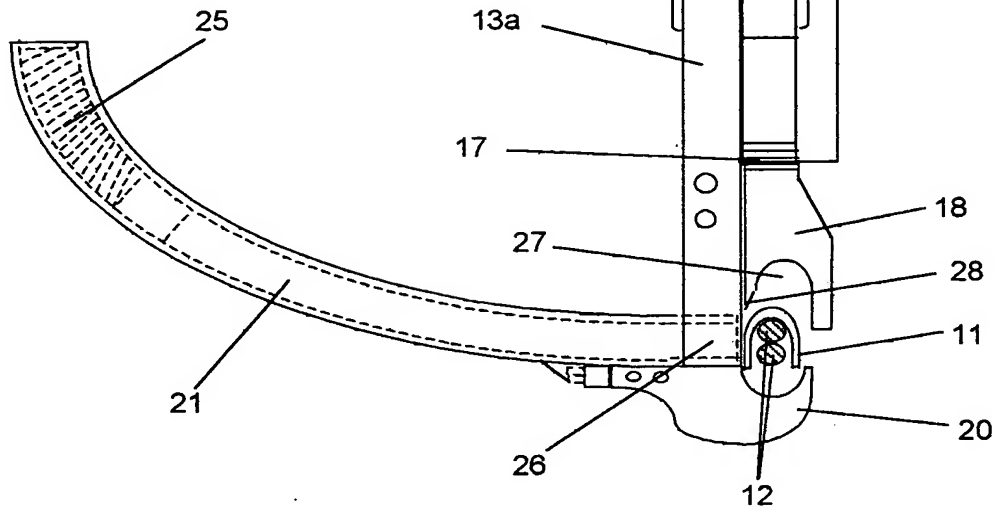


Fig. 2

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